wahaso
WATER HARVESTING SOLUTIONS

Rain Water Harvesting Systems

Welcome to Water Harvesting Solutions – Commercial buildings can save millions of gallons of potable water each year by harvesting rainwater, grey water, condensate and other on-site sources for non-potable uses like toilet flushing, irrigation and cooling tower make-up. Wahaso provides complete design/build systems custom-tailored to each building.

Renewable Water Sources - Practiced for thousands of years across almost all cultures, the process of capturing and reusing rainwater and greywater (from showers and sinks) for non-potable use is fast becoming an important cornerstone for new sustainable practices in the U.S.

WATER HARVESTING

The many methods of harvesting rainwater or greywater can be categorized into two main groups – each with its own advantages and disadvantages – Active & Passive harvesting.

Passive Harvesting: - This "ultra green" approach captures and processes rainwater naturally through biological plantings on green roofs and through vegetative swales in parking areas.

Active Harvesting: - Active harvesting involves mechanical means of collecting, filtering, storing and pumping harvested waters. These systems can be quite sophisticated and can provide sustained levels of water for flushing toilets and watering landscaping.

APPLICATIONS FOR HARVESTED WATER - Harvested water that has been properly filtered and stored can be recycled into a number of uses. Regulations in some states and municipalities restrict the uses of harvested water and should be carefully checked for compliance before a system is designed.

HARVESTED WATER

Depending on the building’s location and function, other uses for the harvested water may be considered. During the Consulting Phase, Wahaso can help assess the most effective approach for managing the supply and demand of harvested water for any project.

Cooling Towers – Cooling towers can be large consumers of water – 40% or more for a typical office building – and are an excellent use of harvested water. A typical commercial building with an evaporative cooling system can use 2-3 million gallons of water in a season to “make-up” water lost through evaporation and the “blow-down” cleaning cycle.

RAINWATER HARVESTING SYSTEMS FROM WATER HARVESTING SOLUTIONS

The practice of rainwater harvesting dates back to the earliest days of civilization yet was nearly lost in the age of inexpensive and readily available municipal water supplies.

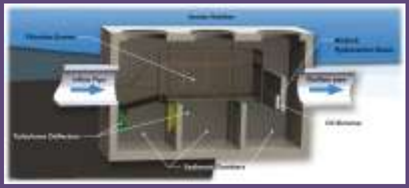
Lately, with the cost and supply of municipal water becoming an issue, there has been a growing resurgence of interest in rainwater harvesting by home and building owners. Thousands of small systems suppliers have emerged to fill the demands of homeowners across the country.

FILTRATION

As rainwater comes into the system from the roof or parking area, there is usually one or more stages of filtration before the storage cistern.

First Flush or Pre-Filtration

The first step is to remove as much debris as possible from the rainwater before it enters the system.



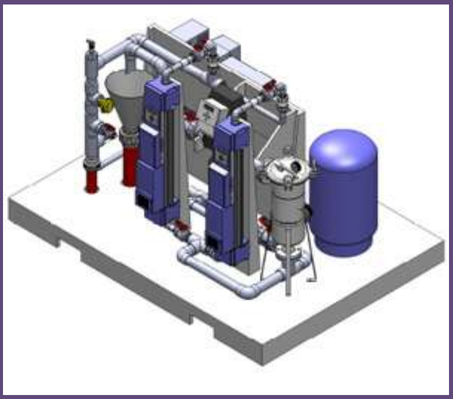
A first flush sequence can be programmed into the control system that senses a rain event and diverts the first few minutes of rainfall to the stormwater system. This is an effective way of minimizing debris and contaminants in the water but also wastes many gallons.

A high-capacity vortex filter uses the pressure of water coming off a roof or parking lot to spin it in a centrifugal manner and then force it through a cleaning screen. Debris drops through the center and to the stormwater system while clean water exits out the sides. We like this method because it is 95% efficient when screening large quantities of water and requires minimal cleaning or maintenance. Vortex filters can be located above ground or below ground.

STORMWATER HARVESTING SYSTEMS - There is a difference between “rainwater” and “stormwater.” They both begin with rain; “rainwater” is the relatively clean water coming from rooftops and other aboveground surfaces. But once that rainwater reaches the ground, it becomes “stormwater” that may be contaminated with silt, hydrocarbons from automobiles, road salt in northern climates, nitrates, other fertilizers from landscaped areas and more.

STORMWATER PROCESSING

Treated stormwater typically has two uses: for sustainable irrigation, and to source an on-site rainwater harvesting system. Both applications require different processing methods.



After detained stormwater has been filtered, we then sanitize the water using ultra violet light—a chemical free, low maintenance approach to sanitation. This process kills any harmful bacteria or pathogens in order to meet health codes and ensure that the water is safe for spray irrigation systems. Submersible pumps are stainless steel with variable frequency drives and are used for pressurization. The sub-surface placement of the system reduces system footprint and allows complete flexibility in the location of the processing skid.

WATER HARVESTING AND EVAPORATIVE COOLING SYSTEMS - Many commercial buildings are cooled with systems using evaporative towers and cooling water systems that can be tremendous consumers of potable water. For example, a 200,000 square foot building with 1,000 tons of cooling can consume 2-3 million gallons of potable water in one season! In warmer climates, the consumption can even be greater.

MULTI-SOURCE HARVESTING SYSTEMS FROM WATER HARVESTING SOLUTIONS

The objective for any water harvesting system is to make it as efficient as possible in replacing the greatest amount of potable municipal water with non-potable water collected on the property. Often that can be accomplished by using water from one source – like rooftop rainwater. But in many cases, the most efficient systems collect water from multiple on-site sources that could include rainwater, greywater (gray water) from showers and sinks, condensate from the cooling system and more.

For more information please visit http://www.wahaso.com